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Recent progress in recognition of (U)HP lithologies in the Seve Nappe Complex of Jämtland, Swedish Caledonides

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Seve Nappe Complex (SNC) forms the highest metamorphic grade unit within the Middle Allochthon of the Scandinavian Caledonides. It is traditionally divisible into three subunits (Lower, Middle and Upper) differing in the metamorphic grade. Eclogites have been found so far only within the Lower and Middle Seve and just in two places, i.e. Norrbotten and Jämtland. Here, we focus on the recent evidence for (U)HP metamorphism in northern and central Jämtland, where the (U)HP lithologies comprise not only eclogites and peridotites, but also metasediments of the Baltoscandian outer margin. In northern Jämtland, the Friningen kyanite-bearing eclogite belonging to the Middle Seve yields P-T conditions of c. 30kbar and 800°C. The Tjeliken phengite-bearing eclogite yields somewhat lower P-T conditions of c. 26kbar and 700°C, but quartz inclusions in omphacite, surrounded by radial cracksindicate coesite breakdown. This biggest eclogite body in Jämtland has been considereded to belong to the Lower Seve; however the structural observations suggest that it may be a klippe of the Middle Seve. Some 150km south in central Jämtland, leucogranulites and kyanite-bearing gneisses of the Middle Seve yield P-T conditions of 24-32kbar and 700-720°C. These new observations and P-T data imply (U)HP metamorphism of the SNC during deep subduction of the Baltican continental crust. Available age data from the Sm-Nd garnet, U-Pb zircon and U-Th-total Pb monazite datings yield a Late Ordovician age. This (U)HP metamorphism, recently documented within the SNC of Jämtland, was an important tectonic event in the evolution of the Scandinavian Caledonides suggesting that the Scandian collision could have started already in the Late Ordovician.